

# ATARI® PROGRAM exchange

## BASIC CROSS-REFERENCE UTILITY (XREF)

by  
Lane Winner

USER INSTRUCTIONS  
(5/01/81)

USER-WRITTEN SOFTWARE FOR ATARI PERSONAL COMPUTER SYSTEMS  
(APX-20009)



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(XREF)

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USER INSTRUCTIONS

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## INTRODUCTION

### OVERVIEW

XREF is a utility program that gives you important information about your BASIC programs. It tells you the number of variables you've used, which is helpful in large programs, where you might be approaching the 128-variable limit. It also lists the names of all these variables and the lines in which you've used them. This information can be valuable for debugging complex BASIC programs, because it helps you to see where your variables are located and how they interact. Finally, it lists your constants and tells you how often you used each one.

The program is simple to use. You answer one prompt and XREF does all the work! You can then obtain a video display version or a printed version of the resulting information.

### REQUIRED ACCESSORIES

40K RAM  
ATARI BASIC Language Cartridge  
ATARI 810 Disk Drive

### OPTIONAL ACCESSORIES

ATARI printer or equivalent printer

## GETTING STARTED

1. Insert the ATARI BASIC Language Cartridge in the (Left Cartridge) slot of your computer.
2. If you want printed output, turn on your printer. If you're using an ATARI 825 Printer, turn on your ATARI 850 Interface Module.
3. Turn on your disk drive(s) and insert the XREF diskette in disk drive one.
4. Power up your computer and turn on your video screen.
5. When the READY prompt displays, type one of the following commands: (1) to run the version that prints your output, type RUN "D:XREF.PRT" and press the RETURN key, or (2) to run the version that displays your output at your video screen, type RUN "D:XREF" and press the RETURN key.

Note. XREF requires that you store your file in SAVE format rather than in LIST format. If you've stored your file in LIST format, load it into RAM and then store it back to disk via the SAVE D:filename command.



## USING XREF

### RUNNING THE PROGRAM

After the COPYRIGHT 1981 ATARI notice appears, XREF prompts you for the file name of your BASIC program:

INPUT FILE NAME:

If you're using one disk drive, remove the XREF diskette and insert the diskette with the program you want cross-referenced, and then type in the device initial and the file name as it appears on the DOS directory (e.g., D:CHECKER). If you're using more than one disk drive, remember to specify the number of the drive containing your file (e.g., D2:CHECKER).

XREF then takes over. If you're using the program that prints your output, XREF will automatically print the results. If you're using the program that displays your output at the video screen, you'll need to stand by until XREF starts listing the results. Then use the CTRL/1 function to stop the display temporarily so that you can write it down; press CTRL/1 to resume the listing.

### OUTPUT

#### Reading your source program

The first output will be to your video screen and will consist of what look like random characters. These are the Screen Editor's interpretation of code stored by the system in internal symbol tables. Next, XREF lists how many variables you used and the message TABLE SAVE IN PROGRESS indicates it is setting up the variable table. Then XREF slowly writes the source program on the screen. However, XREF changes the variables and constants as it sets them up for its own use. XREF also pauses now and then for a disk read. XREF obeys all control and escape commands it encounters, so don't worry if the cursor jumps around on the screen or if you hear a beep now and again. Once XREF has read the complete source file, it displays the message EOF FOUND. And when it has finished working with your source program, it displays the message END OF LIST.

#### Generating the results

Once XREF completes its analysis of your source program, it displays (or prints) the results. Figure 1 illustrates a sample output--video display or printed.

First it displays the CROSS-REFERENCE message, followed by the total number of variables used (1) and the variable table (2). Each variable name displays in the far left column; a left parenthesis after the name indicates a one- or two-dimensional array and a dollar sign after the name indicates a string; the line numbers in your source program using the variable display following this information.

Notice that one variable, RAM, has no line numbers following it (3). Any variable you deleted from your program, but is still present in BASIC's internal symbol table displays in this form. To remove such variables from the internal symbol table, LIST your source program to disk and ENTER it back into RAM (this erases the current internal symbol

table). Then SAVE your source program back on disk again (BASIC will then generate a new internal symbol table for your program). For more information about this procedure, read the sections on LOAD, SAVE, LIST, and ENTER in the ATARI Disk Operating System Reference Manual. The BASIC Reference Manual, pp. 2 - 3, also contains information about using the LIST format.

The XREF variable table is formatted as described above either on the display screen or on the printer, depending on which XREF program you're using. If you're using the video display version (file name XREF), the screen will be formatted as described. If you're using the printed version (file nam XREF.PRT), the screen display will be somewhat jumbled, but the printed table will be formatted as described.

Next, XREF generates the constant chart, which consists of two columns of numbers (4). The left column lists the number of times each constant is used; the right column lists the constant.

CROSS REFERENCE					
(1)	4	VARIABLES USED			
(2)	RAM(	10	30	60	70
		80	90	140	140
		140	140		
	J	20	30	30	40
		50	60	60	70
		80	80	90	90
		100	130	140	140
		140	140	140	150
(3)	RAM				
	X	60	60	70	70
		80	80	90	90
(4)	NO. TIMES USED	CONSTANTS			
		3	1		
		2	2		
		2	3		
		2	4		
		3	5		
		3	6		
		8	8		
		1	48		

Figure 1. Sample Output

## TROUBLESHOOTING

### ERROR CODES

You might encounter some error codes during start-up procedures. ERROR 170- (File Not Found) will display if you enter a file name in response to the INPUT FILE NAME: prompt that doesn't correspond to a file name in your DOS directory. Make sure you specified the correct disk drive and that you spelled the file name correctly. Then start over by typing RUN and answering file name the prompt.

ERROR 130- (Nonexistent Device specified. Device is not turned on or not attached.) will display if you forget to enter D: preceding your file name. Type RUN and re-enter your file name in response to the file name prompt.

ERROR 138- (Device Timeout. Device doesn't respond. Check connections between peripheral equipment and console.) will display if you're using the printer version of XREF but neglect to turn on your printer (and interface). Type RUN and start over. If you don't have a printer connected and you get this error code, then you're using the wrong program. Use the RUN "D:XREF" command and start again.

### PROGRAM OPERATION WARNINGS AND LIMITATIONS

XREF takes a substantial amount of time to run, and you'll be frustrated if you've waited through a long program only to lose the result should someone accidentally press the BREAK key after the program has run or should you be called away from the computer. Or, then again, you might want to see the results another time. To reproduce the variable cross-reference and constant tables, type GOTO 3050, which will call the subroutine generating these tables.



We're interested in your experiences with APX programs and documentation, both favorable and unfavorable. Many software authors are willing and eager to improve their programs if they know what users want. And, of course, we want to know about any bugs that slipped by us, so that the software author can fix them. We also want to know whether our documentation is meeting your needs. You are our best source for suggesting improvements! Please help by taking a moment to fill in this review sheet. Fold the sheet in thirds and seal it so that the address on the bottom of the back becomes the envelope front.

1. Name and APX number of program \_\_\_\_\_

2. If you have problems using the program, please describe them here.

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3. What do you especially like about this program?

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4. What do you think the program's weaknesses are?

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5. How can the catalog description be more accurate and/or comprehensive?

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6. On a scale of 1 to 10, 1 being "poor" and 10 being "excellent", please rate the following aspects of this program:

- \_\_\_\_\_ Easy to use
- \_\_\_\_\_ User-oriented (e.g., menus, prompts, clear language)
- \_\_\_\_\_ Enjoyable
- \_\_\_\_\_ Self-instructive
- \_\_\_\_\_ Useful (for non-game software)
- \_\_\_\_\_ Imaginative graphics and sound

7. Describe any technical errors you found in the user instructions (please give page numbers)

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8. What did you especially like about the user instructions?

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9. What revisions or additions would improve these instructions?

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10. On a scale of 1 to 10, 1 representing "poor" and 10 representing "excellent", how would you rate the documentation and why?

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11. Other comments about the software or the user instructions:

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STAMP

ATARI Program Exchange  
P. O. Box 427  
155 Moffett Park Drive  
Sunnyvale, CA 94086

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